EDITORIAL

SMOKELESS TOBACCO AND PREGNANCY OUTCOMES

J Dhaka Med Coll. 2010; 19(2) : 74-75.

PROF. M EKHLASUR RAHMAN
Professor & Head, Department of Paediatrics, Dhaka Medical College, Dhaka.

Tobacco, *Nicotiana tabacam of solanacae* family, was originally cultivated in North America, thousands of years ago and smoked by indigenous Americans at least 2000 years ago, spreaded throughout the world after the arrival of the European settlers[1]. Tobacco chewing in America started in the early 1700s and was widely accepted by the1850s[2]. Tobacco was introduced in India by Portuguese traders during 1600 AD and cultivation started in India in the 17th century during the reign of Akbar the great and was well established by The East India Company. Betel leaf *(Paan)* chewing has existed as a habit in India and South East Asia for over 2000 years and it was a part of Mughal culture. *Paan* chewing became a widely prevalent form of smokeless tobacco use in India[3].

Tobacco is being used as smoking tobacco and smokeless tobacco (ST). Smoking tobacco is manufactured as cigarettes, bidis, cigars, kreteks, pipes and sticks. Smokeless tobaccos are: chewing tobacco, gul, moist snuff and dry snuff[4].

In Bangladesh commonly used smokeless tobaccos are: shada, jorda and gul. These are taken usually with betel quid, areca nut and lime.

Currently there are 1.3 billion smokers in the world [5]. Almost one billion man in the world smoke: about 35% of men in developed countries and 50% of men in developing countries [4]. About 250 million women in the world are daily smokers. About 22% in developed countries and 9% of women in developing countries smoke tobacco (vide supra). In Bangladesh smoking prevalence is 50% among men and 3% among women. In addition 22% of men and 39% of women use smokeless tobacco in chewable form. Altogether 62% of men and 41% of women either smoke or chew tobacco products [6].

Smoking is an established cause of adverse pregnancy outcome. Scientific studies, encompassing various ethnic groups, cultures and countries, have shown that cigarette smoking during pregnancy significantly affects mother, unborn fetus and the newborn baby. These damaging effects have been repeatedly shown to operate independently of other factors that influence the outcome of pregnancy. Smoking is associated with higher rates of abortion, ectopic pregnancy, stillbirth, placenta previa, abruptio placenta, premature rupture of the membranes, preterm birth, intrauterine growth restriction and sudden infant death syndrome (SIDS) [7, 8].

Tobacco contains thousands of compounds that may have adverse effect on the human body. The major compounds of significance are nicotine and carbon monoxide. Nicotine readily gains access to the fetal compartment via the placenta. The concentration of nicotine in amniotic fluid and fetal serum exceeds those in maternal serum [9, 10]. Nicotine is metabolized to many different compounds, the most notable being cotinine. The half life of cotinine (16 – 18 hours) is much greater than nicotine (2 – 3 hours) and serum concentration of cotinine is 10 to 15 times higher than nicotine[11]. Cotinine concentration in placental tissue, amniotic fluid and fetal serum are similar to corresponding maternal serum level[10].

In human, nicotine increases maternal blood pressure and heart rate. Fetal heart rate is also increased. There is concomitant reduction in the blood flow of uterine artery and umbilical artery[12, 13]. Nicotine also impairs placental transfer of amino acids[14]. It has also been suggested that nicotine affects fetal brain

development which may cause fetal hypoxia and growth retardation[15].

ST users are exposed to higher level of nicotine than smokers. The systemic absorption of nicotine per dose is greater with use of chewing tobacco (average 4.5 mg from average dose of 7.9g chewed over 30 minutes) or snuff (average 3.6mg from an average 2.5g moist snuff kept in mouth for 30 minutes, compared with that from smoking cigarettes (average 1 mg per cigarette)[16]. Nicotine of ST may cause same adverse pregnancy outcome as smoking.

Tobacco is an important public health issue in Bangladesh, but a few studies had been carried out in Bangladesh focusing adverse effects of tobacco on pregnancy outcome. One case control study carried out in a tertiary level hospital of Bangladesh showed that maternal antenatal use of ST about five times a day carries a risk of having IUGR infants 6.4 times than that of non-tobacco users[17]. Another study showed highly significant association of spontaneous abortion with smoking (Odds ratio 1.8)[18]. Krishna K showed that tobacco chewing mothers had a greatly increased stillbirth rate, a major reduction in birth weight which was due in large part to early delivery[19]. Krishnomurthy S showed that maternal ST ingestion causes delivery of LBW baby three times more than non ingested mothers[20].

Tobacco is currently the second major cause of death in the world and causes significant adverse effects on maternal and child health. It is an important public health issue. Maternal mortality, neonatal mortality and under-5 mortality rates are still high in Bangladesh. The generated data could be utilized by the public health policy planners to create public awareness to avoid smokeless tobacco and there by will curb the maternal, perinatal and neonatal mortality.

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